

PSL  
PROPRIETARY  
DATA

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

**CERTIFICATE OF WAIVER OR AUTHORIZATION**

ISSUED TO

Stephen B. Hottman, Deputy Director, Physical Science Lab, New Mexico State University

ADDRESS

P.O. Box 30002, Las Cruces, New Mexico 88003-8002

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED:

OPERATION OF "PUBLIC" UNMANNED AIRCRAFT SYSTEM (UAS), IN THE OPERATING AIRSPACE IN THE VICINITY OF AND NORTHWEST, WEST, AND SOUTHWEST OF LAS CRUCES MUNICIPAL AIRPORT, LAS CRUCES, NEW MEXICO, AND WITHIN THE TRANSITION AIRSPACE LOCATED BETWEEN THE OPERATING AIRSPACE AND THE WESTERN BOUNDARY OF RESTRICTED AREA R-5107B, AT AND BELOW 17,500 FEET MSL, AND WITHIN OTHER AIRSPACE AS SPECIFICALLY DEFINED BY THE SPECIAL PROVISIONS.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

N/A

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached to and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any, authorized representative of the Administrator of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

NOTE. - This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions Nos. 1 to 30 inclusive, are set forth as an attachment hereof.

This certificate is effective from February 1, 2006 to January 31, 2007, inclusive, and is subject to cancellation at any time upon notice by the Administrator or his authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

CENTRAL EN ROUTE AND OCEANIC OPERATIONS  
\_\_\_\_\_  
(REGION)

Bill Yuknewicz  
\_\_\_\_\_  
(SIGNATURE)

Acting Service Area Director  
\_\_\_\_\_  
(TITLE)

\_\_\_\_\_  
(DATE)

**CERTIFICATE OF AUTHORIZATION (COA)**  
**FOR OPERATION OF UNMANNED AERIAL SYSTEMS (UAS),**  
**IN THE VICINITY OF LAS CRUCES AIRPORT, LAS CRUCES, NEW MEXICO,**

**ORGANIZATION:** This Certificate of Authorization (COA) is issued to New Mexico State University's (NMSU) Physical Science Laboratory (PSL), Mr. Stephen B. Hottman, Box 30002, Stewart & Espina Sts, Las Cruces, New Mexico 88003-8002.

**EFFECTIVE;** This COA is effective from February 1, 2006, 0000 UTC, through 2359 UTC, January 31, 2007, unless terminated earlier by the FAA in writing, or voluntarily cancelled by NMSU/PSL. Requests for modification of any of the Special Provisions contained in this COA or requests to include additional Unmanned Aircraft Systems (UAS) to this authorization shall be submitted in writing to the FAA Central En Route & Oceanic Service Area office, Fort Worth, Texas, at least 30 days in advance of the desired change.

**PURPOSE:** This COA authorizes NMSU/PSL to conduct flight operations of the Aerostar Unmanned Aerial System (UAS) when the flights are performed as a "Public Aircraft" and conducted within Class G and E airspace contained within the operating airspace defined by NMSU/PSL in Attachment 1 of their Application for COA, dated April 15, 2005. Additionally, operations of the Aerostar as a public UAS by NMSU/PSL are authorized within Class A airspace that is under the air traffic control jurisdiction of the Albuquerque Air Route Traffic Control Center (ARTCC). Flight operations may be conducted within this Class G and E, airspace at all altitudes up to 17,500 feet MSL, and within Albuquerque Center's Class A airspace, FL180 through FL600, inclusively, provided NMSU/PSL ensures compliance with the applicable sections of 14 CFR 91 and the thirty special provisions defined herein. UAS operations in the Class E airspace between 17,500 MSL and FL180 shall only be used for flights transitioning between Class E and A airspace. This COA is for the use of navigable airspace and **DOES NOT:**

1. Waive any State law or local ordinances. Should any of the planned UAS operations conflict with State law or local ordinances or require special permission of local authorities or property owners, it is NMSU/PSL's responsibility to resolve the matter.
2. Absolve PSL of the responsibility to operate UAS consistent with any flight restrictions issued by appropriate authorities for aircraft operations in specified airspace.
3. Authorize UAS operations within any restricted area, military operations area (MOA), or Military Training Routes (MTRs) without the permission of the using/controlling agency, as appropriate.

**SPECIAL PROVISIONS:** The FAA recognizes that, by nature, UAS have no on-board pilot to perform see-and-avoid responsibilities, and therefore, when operating outside Restricted Areas, Warning Areas, or Class A Airspace, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on

board. The following Special Provisions shall be applicable to all UAS flights performed by NMSU/PSL under the authorization of this COA:

1. Each individual involved in the flight operation of the UAS shall be knowledgeable of, understand, and comply with the Special Provisions contained in this COA that are applicable to his/her role.

2. UAS pilots shall comply with Federal Aviation Regulations (FARs) applicable to the airspace that the UAS will operate in. One pilot-in-command (PIC) must be designated at all times and is responsible for the safety of the UA and persons and property along the UA flight path. The UAS pilot shall have the ability to safely terminate the UAS flight.

3. UAS pilots shall possess an instrument rating whenever the UAS is operated under Instrument flight rules (IFR).

4. UAS pilots conducting flights under Visual Flight Rules (VFR) and beyond visual line of sight shall have passed the required knowledge test for a private pilot certificate as specified in 14 CFR 61.105. Ensure UAS flight operations conducted under VFR comply with the visibility and clearance from cloud minimums specified in CFR 91.155, except that the minimum visibility requirement shall always be 5 miles, regardless of altitude.

5. UAS pilots shall not act as pilot-in-command (PIC) unless they have exercised the training and skills unique to the UAS in which proficiency is maintained on a minimum of three occasions during the preceding 90 days.

6. UAS pilots shall not perform as the pilot on IFR flights unless the pilot has exercised the instrument flight skills unique to the UAS on at least six occasions during the preceding six calendar months.

7. UAS pilot shall perform a thorough preflight inspection of the UAS and determine the UAS is airworthy, prior to each flight.

8. There shall be a designated PIC who is ultimately responsible for the safe operations of the UAS. The UAS pilot shall not pilot more than one UAS at a time.

9. **Visual Observers:** Visual contact of the UAS shall be maintained at all times by visual observers in order to achieve an equivalent level of safety, comparable to the see and avoid responsibility required of pilots of manned aircraft. The UAS pilot and each visual observer shall have in their possession a current third class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification. Visual observers shall have received training on rules and responsibilities described in 14 CFR 91.111, Operating near other aircraft, and 14 CFR 91.113, Right-of-Way Rules.

10. A visual observer shall not perform visual observation duties for more than one UAS at a time.

11. In order to ensure the see and avoid function can be achieved safely the UAS shall not be operated unless there is at least one visual observer, surface or airborne, that is maintaining direct visual contact with the UAS and is located no more than 1 nautical mile laterally and 3,000 feet vertically from the UAS

Note - Aids to vision, such as binoculars, field glasses, or telephoto television may be used as long as their field of view does not adversely affect the surveillance task.

12. Visual observers, whether located on the surface or onboard a chase aircraft, shall have no other duty or responsibility when performing the visual observer function.

13. The visual observer shall maintain direct communication with the UAS pilot and shall provide the UAS pilot with a change of heading and/or altitude, when necessary, so the UAS avoids a collision with any aircraft, or aerial operation in the NAS.

14. The use of alcohol or drugs by individuals performing UAS pilot or visual observer functions shall be in compliance with 14 CFR 91.17.

15. Chase Aircraft Operations: Chase aircraft pilots must not concurrently perform either observer or UA pilot duties along with chase pilot duties. Observers onboard a chase aircraft must keep visual contact with the UA at all times. To the extent consistent with the safety of the chase aircraft, the chase aircraft shall be operated within one mile laterally and 3000 feet vertically from the UAS.

16. Coordination shall be conducted with Albuquerque Air Route Traffic Control Center's (ARTCC) Airspace and Procedures office (505-856-4533) at least 5 days prior to the proposed UAS flight, whether operated under VFR or IFR.

17. Advanced approval (5days) shall be obtained from Albuquerque ARTCC's Air Traffic Manager prior to performing any UAS flights in Class A Airspace. ZAB retains the right to change, modify or deny the request to operate in Class A Airspace.

18. NMSU/PSL UAS personnel shall comply with any procedures and requirements stipulated by the Albuquerque ARTCC for UAS operations.

19. Coordination shall be conducted with Holloman AFB, 49<sup>th</sup> FW, Base Operations, and any other agencies, at least 48 hours in advance, whenever the UAS flight will be performed above 7,500 feet MSL.

20. Coordination shall be conducted with Albuquerque Automated Flight Service Station (AFSS), at least 3-hours, but no more than 72 hours in advance, for the purpose of providing data for the issuance of a Notice to Airmen (NOTAM) and at least 3-hours in advance, to file an IFR flight plan for flights under IFR.

21. Coordination shall be conducted with Albuquerque ARTCC's, Southeast Area Supervisor (505-856-4573), at least one hour in advance, for all UAS flights being conducted under VFR.
22. Each UAS shall possess an operational Mode 3/A, 4096 code, with altitude reporting (Mode C), air traffic control radar beacon system (ATCRBS) transponder.
23. A transponder code shall be used for each UAS flight, unless otherwise approved by Albuquerque ARTCC.
24. The UAS positions lights and anti-collision light shall be operational and on at the time of takeoff and shall remain on during the duration of the flight. However, the anti-collision light need not be lighted when the PIC determines that, because of operating conditions, it would be in the best interest of safety to turn the anti-collision light off (ref. 14 CFR 91.209 (b)).
25. No flights shall be conducted over densely populated areas or over any open air assembly of persons.
26. No UAS flight shall be conducted within restricted area airspace or Military Operations Area (MOA) airspace without the approval of the appropriate military scheduling agency or Albuquerque ARTCC.

Note - When approval to traverse a restricted area or MOA is granted by the appropriate scheduling authority, this approval shall be included in the remarks section of the IFR flight plan. EXAMPLE: WSMR HAS APVD OPS IN R5107C.

27. No UAS flight shall be conducted lower than 1,000 feet above the highest altitude defined for VR176, VR263, or VR1233 within the route width for any segment of the affected route, unless prior coordination is accomplished with the scheduling authority for these routes to deconflict the UAS flight from any military aircraft utilizing these routes.
28. No UAS flight shall be conducted within the airspace defined as Air Refueling Anchor 639 during the time any refueling operations are being performed in this airspace.
29. **Lost Link Contingency** - The autonomous flight management system (FMS) shall be programmed so, that during a lost link, the UAS is routed to a defined holding location, via a route that is totally contained within the defined UAS operations airspace. The contingency route to the holding point shall be clear of any restricted area or MOA, unless previously coordinated with the using agency and approval to traverse the airspace has been granted. The contingency holding airspace shall be sufficient distance from any airport so the UAS flight in this airspace is clear of the normal aircraft flight patterns in the vicinity of the airport.
30. **Emergency operations** - Because there are many variables involved, it is virtually impossible to develop procedures for every emergency possibility. The UAS pilot shall use his/her best judgment consistent

with emergency criteria defined in the Aerostar emergency operations procedures.

This COA does not, in itself, waive any Federal Aviation Regulation (FAR), nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the NMSU/PSL to resolve the matter. The NMSU/PSL is hereby authorized to operate a UAS in the area described, and during the times specified, in this COA.